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ABSTRACT

The relationshp between success in learning to read and success in drawing tasks that used the same varieties of perception needed in learning to read was investigated. Ten tasks involving perceiving presented forms, memorizing them, and reproducing them in drawing were given to 150 children. These tasks were related to position in space, constancy of form, spatial relationships, and figure-ground. Comparisons of performance were made (1) among three groups of first-graders (21 remedial, 16 low reading success, and 16 high reading success); (2) among two groups of second-graders (25 remedial and 25 heterogeneous); and (3) among the above, 22 kindergarteners, and 27 third and fourth-graders. It was concluded (1) that the greatest difference in performance success occurred between first-grade high and low reading success groups, (2) that there was a relationship between success in drawing tasks and reading success, (3) that retarded readers performed less successfully than children reading at their own grade level, and (4) that success in performance of the tasks was maturational. Tables and references are included. (AW)

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ABSTRACT

Nelson, Anah. "The Relationship Between Success in Drawing Tasks Using Varieties of Perception Needed in Learning to Read and Expected Success in Learning to Read," Research Paper, Winona State College, 1970.

The Purpose of this study was to determine if there was a relationship between success in drawing tasks using varieties of perception needed in learning to read and expected success in learning to read at the primary level, and to determine implications for establishing an art program that might enhance reading success.

To accomplish that, two homogeneous first grade classes, whose populations were based on expected reading success as predicted by readiness tests and teacher-judgements, were given drawing tasks. Those tasks related to (1) position in space, (2) constancy of form, (3) spatial relationships, and (4) figure-ground. The definitions of those varieties of perception were consistent with current literature in perception and reading.

To determine the performance of retarded readers, the tasks were also presented to forty-six first and second graders from nine schools who had been referred for remedial reading. To determine the effect of maturation, the test was given to twenty-two kindergarten children from eight schools who scored low on readiness tests, to a second grade, and to a combination third-fourth grade.

The writer has made certain conclusions after conducting

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this study, among them the following:

1. That success in performance of those tasks was maturational.

2. That retarded readers performed the tasks less successfully than children who were reading at their own grade level.

3. The greatest difference in degree of success of performance occurred between high and low reading success groups at the first grade level and that there was a relationship between success in drawing tasks using those varieties of perception and the predicted success in learning to read.

4. There were implications for art instruction at the first grade level and for retarded readers, that is, art activities based on developing those varieties of perception might set conditions for maturation of those perceptual skills needed for reading success.

On the basis of that, it was concluded that further study should be made using those activities at those levels. At present, the writer is involved in this study,

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THE RELATIONSHIP BETWEEN SUCCESS IN DRAWING TASKS USING VARIETIES OF PERCEPTION NEEDED IN LERANING TO READ AND EXPECTED SUCCESS IN LEARNING TO READ.

ANAH M. NELSON

INTRODUCTION

At a time when the study of the learning patterns of children in the early years has become increasingly important, studies that deal with specific relationships between subject areas and these learning patterns have been limited. As Salome points out, it would appear that an investigation of perceptual training in reading programs might have implications for art education as many of the concepts and skills dealt with in those programs may have some effect on the child's art performance.[1] Since drawing activities are used frequently at the primary level, it would seem important for primary teachers and teachers of art to become aware of any common meanings between the drawing and reading process.

This study was concerned with some perceptual abilities used in reading and art activities. Four perceptual abilities dealt with by the Frostig Program for the Development of Visual Perception that seemed to have relevance to academic and drawing activities were: (1) perception of position in space, (2) perception of spatial relationships, (3) perceptual constancy, and (4) figure-ground perception.[2]

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Perceiving position in space is perception of the relationship of an object to the observer.[3] If a child has not developed an inner awareness of position in space as defined by left to right, he will have difficulty distinguishing the letter "b" from "d".[4]

Lowenfeld states that "experiencing one's self as a part of the environment is one of the most important assumptions for cooperation and for visual coordination; the child's inability to relate things to each other in space, outside the self, is a clear indication that he is not ready to cooperate socially and he does not have the ability to relate letters to each other or to learn to read."[5] He emphasizes that any topic for art expression should be tied closely to the child's body-self and should provide the opportunity to establish relationships between his own drawing and his environment.[6]

Perceptual constancy is the ability to perceive an object as possessing invariant properties, such as shape-in spite of the variability of the impression on the sensory surface.[7] A child who can recognize a particular form, and cannot recognize the same symbol when it is presented in a different manner will be deceived by his senses.[8] In drawing, the young child would discover and accept the fact that a visual object on paper can stand for an enormously different one in nature, provided it is its structural equivalent.[9]

In perception of spatial relationships, parts may be seen in relation to each other and all of them receive approximately equal attention. The different parts are not actually perceived simultaneously, but in a temporal sequence and involve visual memory. Disabilities in the perception of spatial relationships inevitably lead to difficulties in academic learning.[10] In drawing a square, the child is dependent on space and time relationships. The square consists of four equal lines in specific relationships and in drawing, each line is produced at a different time.[11]

To understand figure-ground perception and its importance, it is essential to remember that we perceive most clearly those things to which we turn our attention. The figure is the part of the field of perception that is the center of the observer's attention. A child with poor figure-ground perception cannot attend to the figure, as his attention tends to jump to any stimulus that intrudes upon him. In drawing, he may continually return with his pencil to the stimulus of a line he has already drawn or he may lose control in attempting to resist the attraction of a previously drawn line.[12]

The child's success in learning to read depends on his visual and perceptual proficiency.[13]

According to Rhoda Kellogg, reliable information can be obtained about how the child organizes lines by an objective analysis of the lines in children's work. Child work would reflect the ability to compose line patterns and store them in memory. This could provide a valuable insight into the child's mind.[14]

In carrying on Gesell's work in understanding the development of the child, Ilg and Ames were able to use copying of line forms as revelation of growth. They established qualities of performance that would determine developmental or behavior age for certain copying tasks.[15]

In the reading process, the child must recognize symbols on a page and decode the organization of forms. In drawing, the child must organize the forms internally and translate this into a series of movements that take place in both time and space. Perception is necessary to both visual tasks of reading and drawing; therefore, the relationship between disability in perception and reading disability justifies the study of a relationship between drawing tasks requiring specific areas of perception and the placement of students in reading level groups.

STATEMENT OF THE PROBLEM

The purpose of this study was to determine if a relationship existed between success in learning to read and success in drawing tasks that used the same varieties of perception needed in learning to read; that is, was there any measurable relationships between the level of success

in perceiving position in space, spatial relationships, perceptual constancy constancy and figure-ground relationships in drawing and selection tasks and in the expected level of success in learning to read as predicted by achievement tests and teacher judgments.

The following null hypotheses were studied:

Null Hypothesis 1, that there was no significant difference between performance of the drawing tasks by first graders and their placement in remedial reading groups, low reading success groups and high reading success groups.

Null Hypothesis 2, that there was no significant difference between performance of drawing tasks by second graders and their placement in remedial reading groups or in a heterogeneous grouped second grade.

Null hypothesis 3, that the success of performance of the drawing tasks would not be maturational and there would not be any difference in success from kindergarten through the primary grades.

RESEARCH PROCEDURES

One hundred-fifty children from eleven classes participated in the study. The students were from Phelps Laboratory School at Winona State College, from the summer remedial reading classes in the Winona Public Schools and from a similar program at Spring Valley, Minnesota.

At the time of the study, Phelps Laboratory School contracted to the Goodview School district for the education of all its elementary children. The primary classes were homogeneously grouped according to reading ability. Placement in the classes was based on reading tests and teacher judgments.

The students in the Winona summer remedial reading program had been referred from eight schools. The students in the program at Spring Valley were from its one public school.

To test the first null hypothesis, selected tasks were given to twenty-one first grade students who had been referred for remedial reading work, to a class of sixteen first graders who were in a low reading success class, and to sixteen first graders from a class with high predicted reading success.

To test null hypothesis 2, the tasks were given to twenty-five second graders who were referred for remedial work and to a class of twenty-five heterogeneous grouped second graders.

To test null hypothesis 3, the tasks were then given to twenty-two kindergarten students and to twenty-seven students in a combination third-fourth grade. The scores of all the groups were used to determine the effect of maturation.

Ten tasks were selected. Nine of them consisted of drawing circles, squares, triangles, rectangles and lines. The Gesell Examination for Children established successful performance in copying drawings of these forms at the five

year level.[16] The individual forms were presented to the children on cards. They were directed to view them for five seconds, the cards were removed and the children were directed to draw what they saw. That process would include perceiving the form, visual memory of the form and reproducing the form.

Triangles and rectangles were presented in up-down and right-left positions to establish success in perceiving position in space. A circle, square and rectangle were presented to establish success in perceptual constancy of form. Success in perceiving relationships in space and movement was established by presenting a pre-drawn line, a line of yarn movement on a pegboard and a non-visual line of movement of a ball thrown through the air.

To establish success in attention to the stimulus figure, the children were asked to view the ground from which a figure had been cut and to select the correct figure from a series of four similar figures.

Since motor control was not a consideration, errors in closure or tidyness of drawing were not considered as fail. Each subject's score was the number of pass or fail on the ten tests.

SUMMARY OF FINDINGS

The null hypotheses were analyzed in terms of pass and fail on the tasks. The results pertaining to the null hypotheses are shown in Tables 1, 2 and 3.

TABLE 1
PERCENTAGES OF PASS OR FAIL IN DRAWING AND SELECTION TASKS AMONG FIRST GRADERS

	N	Pass	Fail
Low predicted reading success	16	20.9	44.9
Remedial readers	21	38.2	42.0
High predicted reading success	16	40.9	13.2

$X^2 = 56.45$ p.=.001 df.=2

TABLE 2
PERCENTAGES OF PASS OR FAIL IN DRAWING AND SELECTION TASKS AMONG SECOND GRADERS

	N	Pass	Fail
Remedial readers	25	46.3	61.3
Heterogeneous reading class	25	53.7	38.7

$X^2 = 8.4$ p.=.01 df.=1

TABLE 3
PERCENTAGES OF PASS OR FAIL IN DRAWING AND SELECTION TASKS FOR THE TOTAL GROUP AND GRADE LEVELS

	N	Pass	Fail
Remedial, kindergarten	22	8.0	28.0
Low, grade one	16	6.8	18.4
Remedial, grade one	21	12.4	17.2
High, grade one	16	13.3	5.4
Remedial, grade two	25	17.4	15.2
Grade two	25	20.2	9.6
Grade three/four	25	21.9	6.2

$X^2 = 233.1$ p.=.001 df.=6

Among first graders, there was a difference in percentage of success between the groups. The high reading success group was the most successful. The greatest percentage of success occurred between this group and the low reading group.

At the second grade level, the heterogeneous class had a higher percentage of success that did the remedial readers.

Among all the groups, the percentage of success increased from kindergarten through the third/fourth grade level. The high reading group, grade one, performed at a higher percentage than did the remedial group, grade two.

Chi-square tests of significance indicated that these described differences reached significance beyond the .01 level. On the basis of this the three null hypothese were not accepted.

CONCLUSIONS

The writer has made certain conclusions after conducting this study. The conclusions and implications derived from this study were applicable only to the subjects involved. Among them were the following:

1. That the greatest difference in degree of success of performance occurred between high and low reading success groups at the first grade level and that there was a

relationship between success in drawing tasks using varieties of perception and the predicted success in learning to read.

2. That retarded readers performed at a less successful level than children who were reading at their own level.

3. That success in performance of those tasks was maturational and that chronological maturation would eventually assure success of those tasks. However, school curriculum assumes that learners who move through the chronological levels of the curriculum would possess sufficient capability to deal successfully with each level. If they could not successfvely meet the demands of each curriculum level, remedial instruction would be provided. But as Getman points out, chronological maturity does not guarantee the readiness that would allow children to perform at the standards that curriculum would impose upon them.[17] Therefore, the implication for art instruction is that art instruction based on the development of those varieties of perception could provide a preventative program by setting the conditions for maturation of those perceptual skills needed for reading success.

4. That there is a possibility that the degree of success of performance of those tasks at early first grade level might be an indicator to predict reading success. It is also possible that the degree of success of these tasks could be diagnostic in nature. The scores of success of performance

of these tasks could provide a relatively simple device for indicating the level of performance and diagnoses for individual instruction, thus providing a measure of accountability in the primary art program.

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REFERENCES

1 Richard A. Salome, "Perceptual Training in Reading Readiness and Implications for Art Education", Studies in Art Education, 10:1, fall 1968, p. 58.

2 Marianne Frostig and David Horne, The Frostig Program for the Development of Visual Perception, Chicago: Follett Publishing Company, 1964, p. 10.

3 Frostig, op. cit., p. 40.

4 George H. Early, Perceptual Training in the Curriculum, Columbus: Merrill Publishing Company, 1969, p. 7.

5 Viktor Lowenfeld and W. Lambert Brittain, Creative and Mental Growth, New York: The Macmillan Company, 1964, p. 120.

6 Lowenfeld, op. cit., p. 127.

7 Frostig, op. cit., p. 34.

8 Ibid.

9 Rudolf Arnheim, Art and Visual Perception, Los Angeles: University of California Press, 1965, p. 133.

10 Frostig, op. cit., p. 75.

11 Early, op. cit., p. 20.

12 Frostig, op. cit., p. 31

13 Frostig, op. cit., p. 8.

14 Rhoda Kellogg, Handbook for Microfiche, How Young Children Teach Themselves to Draw, Washington, D.C.: Microcard Editions, 1967, p. 5.

15 Frances L. Ilg and Louise Bates Ames, School Readiness, Behavior Tests used at the Gesell Institute, New York: Harper & Row, 1965.

16 ibid.

17 G. N. Getman, Developing Learning Readiness, New York: Webster Division, McGraw-Hill Book Company, 1968, p. 1.